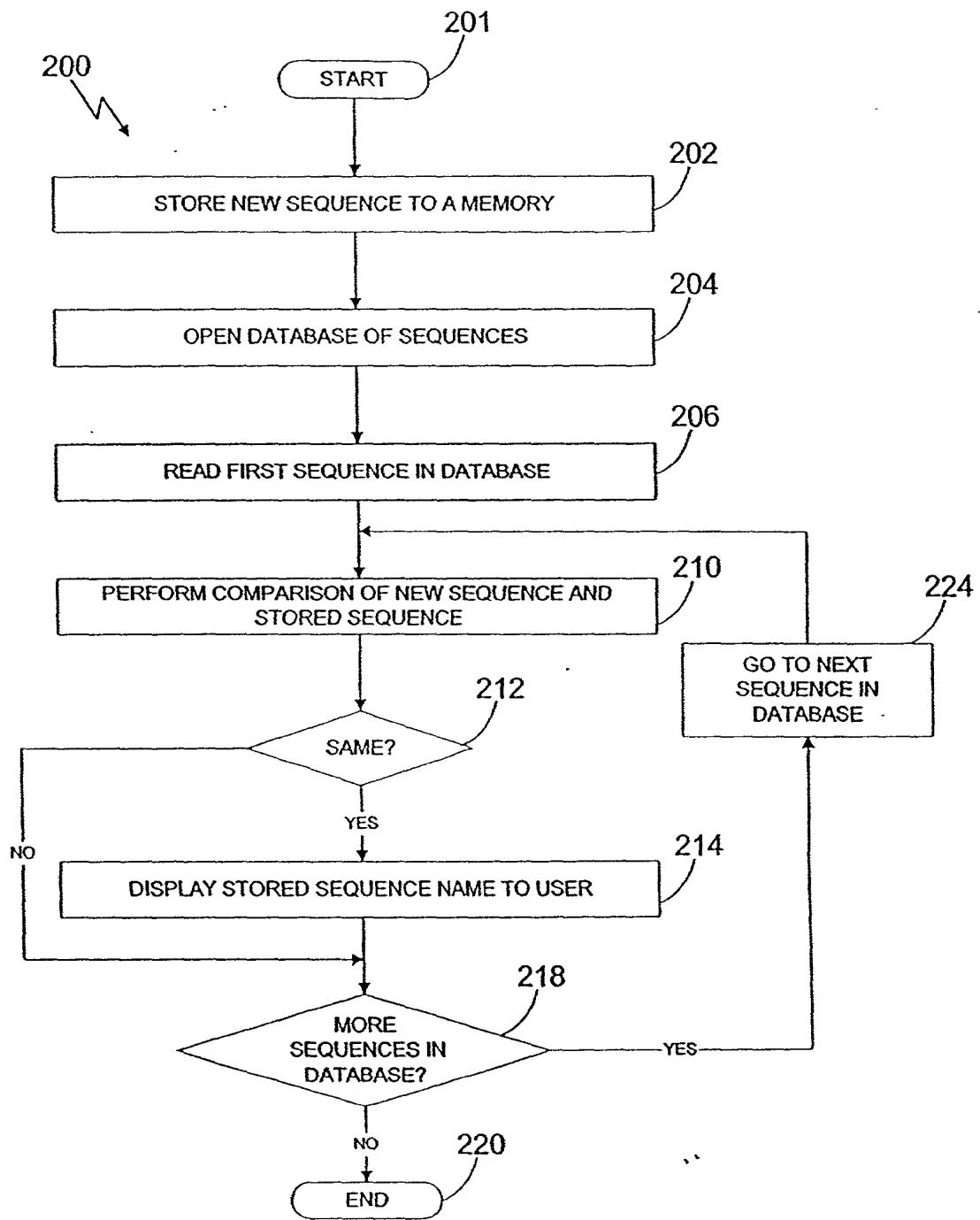
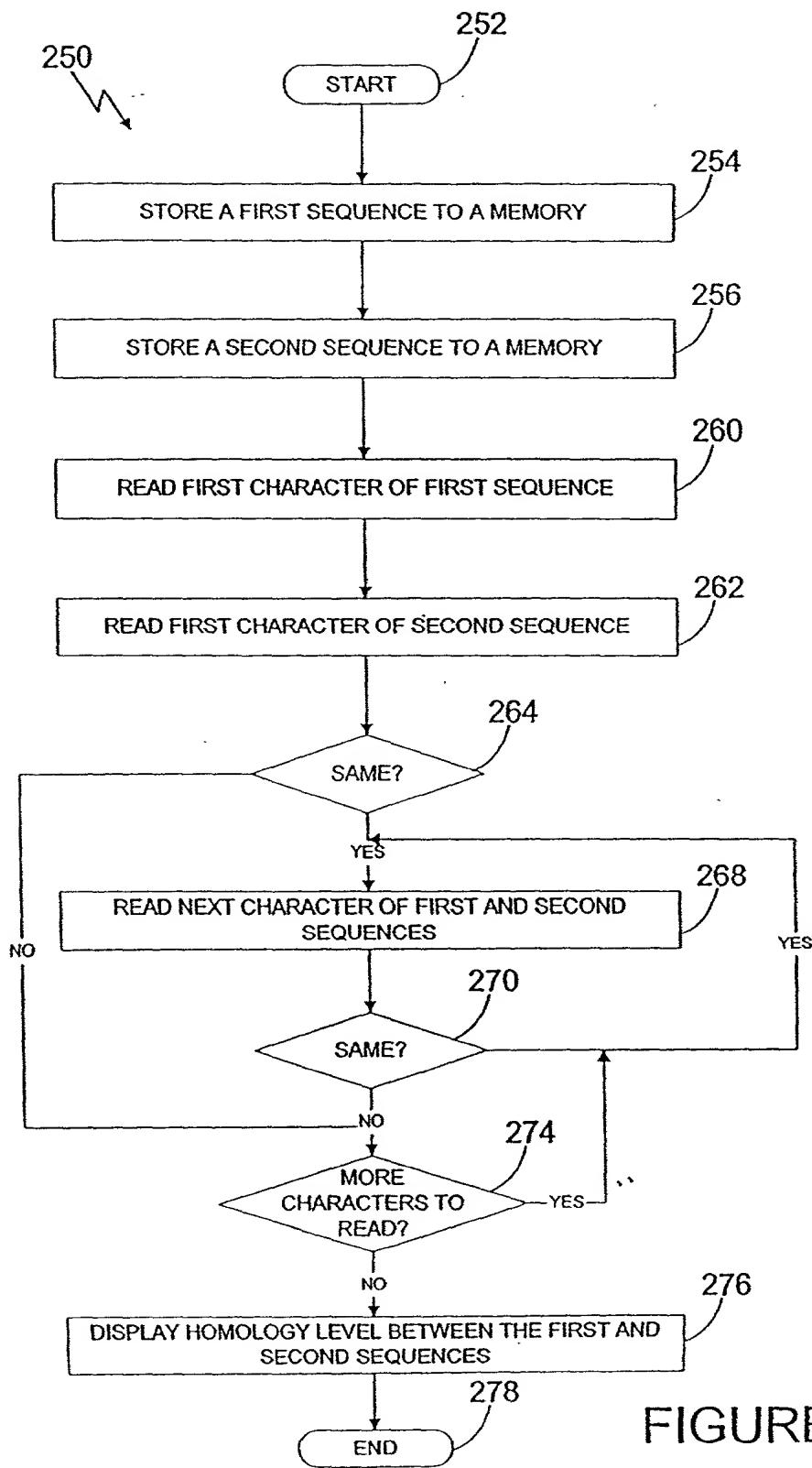


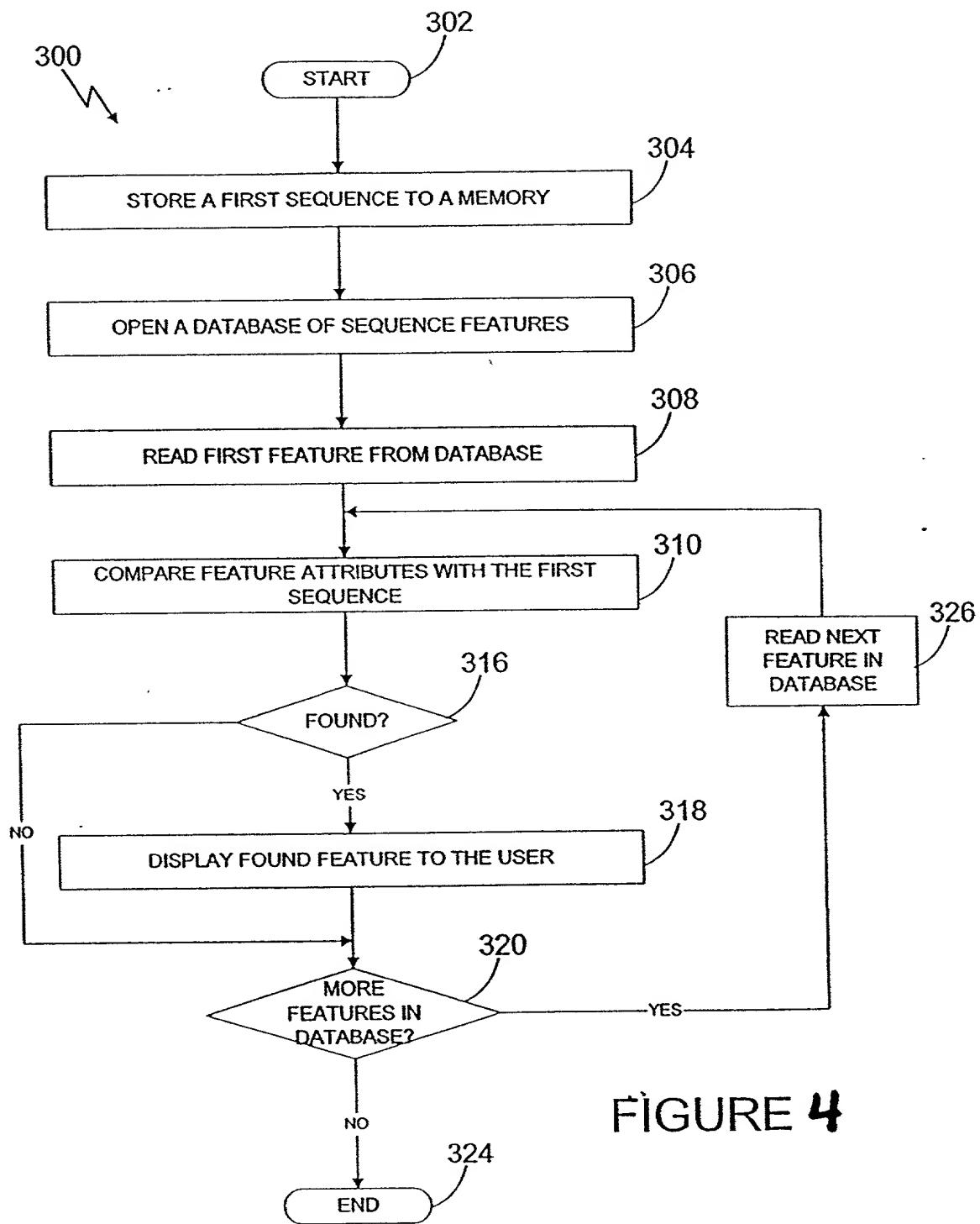
FIGURE 1



**FIGURE 2**



**FIGURE 3**



**FIGURE 4**

# FIGURE 5

## *Ammonifex degensii* KC4 Phosphatase (3A1A=3A2A) Complete gene sequence

ATGAGGGGGAGCGGAGTGC GGATACTTCTCACCAACGATGACGGCATCTTGCCGAGGGT  
1 MetArgGlySerGlyValArgIleLeuLeuThrAsnAspAspGlyIlePheAlaGluGly  
  
CTGGGGCTCTGC GCAAGATGCTGGAGCCC GTGGCTACCCTTACGTGGTGGCTCCGGAC  
21 LeuGlyAlaLeuArgLysMetLeuGluProValAlaThrLeuTyrValValAlaProAsp  
  
CGAGAGCGTAGCGCGGCCAGCCATGCTATCACCGTTACCGCCCTGCGGGTGC GGGAG  
41 ArgGluArgSerAlaAlaSerHisAlaIleThrValHisArgProLeuArgValArgGlu  
  
GCGGGTTTCGCAGCCCCAGGCTTAAAGGCTGGGTAGTGGACGGTACCCCGCCGACTGC  
61 AlaGlyPheArgSerProArgLeuLysGlyTrpValValAspGlyThrProAlaAspCys  
  
GTCAAGCTGGGCCTGGAGGTACTTTGCCCGAACGTCCAGATT CCTGGTTTCGGGCATA  
81 ValLysLeuGlyLeuGluValLeuLeuProGluArgProAspPheLeuValSerGlyIle  
  
AACTACGGGCCAACCTGGGTACCGACGTACTTACTCCGGCACCGTCTGGCGGCCATA  
101 AsnTyrGlyProAsnLeuGlyThrAspValLeuTyrSerGlyThrValSerAlaAlaIle  
  
GAAGGGTAATT AACGGCATTCCCTCGGTGGCCGTATCTTGCCACGCCGGAGCCG  
121 GluGlyValIleAsnGlyIleProSerValAlaValSerLeuAlaThrArgArgGluPro  
  
GACTATA CCTGGCGGCCCGGTPCGTCCTGGTCTGCTGGAGGA ACTGCGAAA ACACCAA  
141 AspTyrThrTrpAlaAlaArgPheValLeuValLeuLeuGluGluLeuArgLysHisGln  
  
CTGCC CAGGAACCTGCTAACGTCAACGTGCCGACGGGTGCCCGCGGGTCAAG  
161 LeuProProGlyThrLeuLeuAsnValAsnValProAspGlyValProArgGlyValLys  
  
GTGACCAA ACTGGGAAGCGTACGCTACGTCAACGTGGTAGACTGCCGCACCGACCCCTCGG  
181 ValThrLysLeuGlySerValArgTyrValAsnValValAspCysArgThrAspProArg  
  
GGGAAGGCTTACTACTGGATGGCGGGAGAACCATGGAGCTGGACGGCAACGACTCCGAA  
201 GlyLysAlaTyrTyrTrpMetAlaGlyGluProLeuGluLeuAspGlyAsnAspSerGlu  
  
ACCGACGTCTGGCGGTGCGAGAACGGCTATATTCCGTAACACCGTCCAGATCGACCTT  
221 ThrAspValTrpAlaValArgGluGlyTyrIleSerValThrProValGlnIleAspLeu  
  
ACTAACTACGGCTTCTGGAAAGAACTCAAAAATGGCGTTCAAGGATATCTTTCTTCT  
241 ThrAsnTyrGlyPheLeuGluGluLeuLysLysTrpArgPheLysAspIlePheSerSer  
  
TAA  
261 End 261

# FIGURE 6

## *Methanococcus igneus* Ko15 Phosphatase (9A1A) Complete Gene Sequence

ATGTTGGATATACTGCTTGTAAATGATGATGCCATTATTCAAATGGATTAATAGCTTG  
1 MetLeuAspIleLeuLeuValAsnAspAspGlyIleTyrSerAsnGlyLeuIleAlaLeu  
  
AAGGATGCATTATTGGAAAAATTAAATGCGAGGATTACTATTGTAGCCCCAACAAATCAG  
21 LysAspAlaLeuLeuGluLysPheAsnAlaArgIleThrIleValAlaProThrAsnGln  
  
CAGAGTGGTATTGGTAGGGCAATAAGTTATTGAGCCGTTAAGGATAACTAAACAAA  
41 GlnSerGlyIleGlyArgAlaIleSerLeuPheGluProLeuArgIleThrLysThrLys  
  
TTAGCAGATGGTTCTGGGGATATGCAGTTTCAGGAACCCCAACAGATTGCGTTATATTG  
61 LeuAlaAspGlySerTrpGlyTyrAlaValSerGlyThrProThrAspCysValIleLeu  
  
GGCATTATGAGATATTAAAGAAGGTACCTGATGTAGTTATATCAGGAATAAACATTGGA  
81 GlyIleTyrGluIleLeuLysValProAspValValIleSerGlyIleAsnIleGly  
  
GAAAACCTTGGGACTGAAATAACAACCTCTGGAACGTTGGGGCTGCGTTGAAGGGGCC  
101 GluAsnLeuGlyThrGluIleThrSerGlyThrLeuGlyAlaAlaPheGluGlyAla  
  
CATCATGGGCTAACGGCATTAGCATCATCACTCCAAGTTACCTCTGACCATCTAAAGTTT  
121 HisHisGlyAlaLysAlaLeuAlaSerSerLeuGlnValThrSerAspHisLeuLysPhe  
  
AAAGAGGGGGAGACCCCAATAGACTTCACAGTCCCAGCAAGAATTACTGCAAATGTTGTT  
141 LysGluGlyGluThrProIleAspPheThrValProAlaArgIleThrAlaAsnValVal  
  
GAGAAGATGTTGGATTATGATTCCCATGATGTCGTCAACTTAAACATTCCAGAAGGA  
161 GluLysMetLeuAspTyrAspPheProCysAspValValAsnLeuAsnIleProGluGly  
  
GCAACAGAAAAGACACCGATTGAAATCACAAAGGTTGGCAAGGAAAATGTATACAACACAC  
181 AlaThrGluLysThrProIleGluIleThrArgLeuAlaArgLysMetTyrThrThrHis  
  
GTTGAGGAAAGAATAGATCCAAGAGGGAGGAGTTATTATTGGATTGATGGGTATCCTATT  
201 ValGluGluArgIleAspProArgGlyArgSerTyrTyrTrpIleAspGlyTyrProIle  
  
TTAGAGGAAGAGGAAGACACTGATGTCTATGTTAGAAGAAAGGGACATATTCTCTA  
221 LeuGluGluGluAspThrAspValTyrValValArgArgLysGlyHisIleSerLeu  
  
ACCCCATTAACATTAGACACAACAATTAAAAATTAGAGGAATTAAAGAAAAATATGAG  
241 ThrProLeuThrLeuAspThrThrIleLysAsnLeuGluGluPheLysLysTyrGlu  
  
AGAATATTAAATGAATGA  
261 ArgIleLeuAsnGluEnd 266

# FIGURE 7

## *Thermococcus alcaliphilus AEDII12RA Phosphatase (18A)* Complete Gene Sequence

ATGATGATGGAATTCACTCGCGAGGGAAATAAAGCTGCTGTAGAGGCACTTCAAGGGTTA  
1 MetMetMetGluPheThrArgGluGlyIleLysAlaAlaValGluAlaLeuGlnGlyLeu  
  
GGAGAGATCTACGTAGTTGCCCAATGTTCAAAGGAGCGCAAGTGGAAAGGGCAATGACC  
21 GlyGluIleTyrValValAlaProMetPheGlnArgSerAlaSerGlyArgAlaMetThr  
  
ATCCACAGACCTCTAACGGCTAAAAGAATAAGTATGAACGGTGCAAAAGCAGCCTATGCT  
41 IleHisArgProLeuArgAlaLysArgIleSerMetAsnGlyAlaLysAlaAlaTyrAla  
  
TTGGATGGAATGCCGTTGATTGCGTTATCTTGCCATGGCCAGATTGGAGATTTCGAC  
61 LeuAspGlyMetProValAspCysValIlePheAlaMetAlaArgPheGlyAspPheAsp  
  
CTTGCAATAAGTGGTGTAAACTTGGGAGAAAACATGAGCACCGAGATAACGGTTCCGGG  
81 LeuAlaIleSerGlyValAsnLeuGlyGluAsnMetSerThrGluIleThrValSerGly  
  
ACTGCAAGCGCTGCAATAGAGGCTGCAACCCAAGAGATCCAAGCATTCCCATAAGCCTG  
101 ThrAlaSerAlaAlaIleGluAlaAlaThrGlnGluIleProSerIleProIleSerLeu  
  
GAAGTTAATAGAGAAAAACACAAATTGGTGAGGGCGAAGAGATTGACTTCTCAGCTGCC  
121 GluValAsnArgGluLysHisLysPheGlyGluGlyGluIleAspPheSerAlaAla  
  
AACTTCCCTAACGAAAAATCGCAACGGCGTTAAAGAGAGGCCTCCCCAAAGGAGTC  
141 LysTyrPheLeuArgLysIleAlaThrAlaValLeuLysArgGlyLeuProLysGlyVal  
  
GATATGCTAACGTCAACGTCCCTPATGATGCAAATGAAAGGACAGAGATAGCTTTACT  
161 AspMetLeuAsnValAsnValProTyrAspAlaAsnGluArgThrGluIleAlaPheThr  
  
CGCCTGGCAAGAAGGATGTATAGGCCTTCTATTGAAGAGGCCATAGACCCAAAGGGAAAT  
181 ArgLeuAlaArgArgMetTyrArgProSerIleGluGluArgIleAspProLysGlyAsn  
  
CCCTACTACTGGATAGTTGGAACTCAGTGCCTAACGGAGGCATTAGGCCGGAACGGAT  
201 ProTyrTyrTrpIleValGlyThrGlnCysProLysGluAlaLeuGluProGlyThrAsp  
  
ATGTATGTAGTTAAAGTTGAGAGAAAAGTTAGCGTGACTCCAATAAACATTGATATGACA  
221 MetTyrValValLysValGluArgLysValSerValThrProIleAsnIleAspMetThr  
  
GCAAGAGTGAATTAGACGAGATTAAAAGACTTTAGAACTGTAG  
241 AlaArgValAsnLeuAspGluIleLysArgLeuLeuGluLeuEnd 255

## FIGURE 8

*Thermococcus celer* Phosphatase (25A1A)  
Complete Gene Sequence

	ATGAGAACCTGACAATAACACTGACGCCGGAGGGGTCGTTTGAGGATTCTCTGACG	
1	MetArgThrLeuThrIleAsnThrAspAlaGluGlyPheValLeuArgIleLeuLeuThr	20
	AACGACGATGGAATCTACTCCAACGGACTGCCGCCGCTGTGAAAGCCTGAGTGAGCTC	
21	AsnAspAspGlyIleTyrSerAsnGlyLeuArgAlaAlaValLysAlaLeuSerGluLeu	40
	GGCGAAGTTTACGTCGTTGCCCTCTTCCAGAGGAGCGCGAGCGGCAGGCCATGACG	
41	GlyGluValTyrValValAlaProLeuPheGlnArgSerAlaSerGlyArgAlaMetThr	60
	CTCCACAGGCCATAAGGCCAAGCGCGTTGACGTTCCCGCGCAAAGATAGCCTACGGA	
61	LeuHisArgProIleArgAlaLysArgValAspValProGlyAlaLysIleAlaTyrGly	80
	ATAGATGGAACCTCCTACTGACTGCGTGATTTGCCATAGCCCGCTCGGGAGCTTGGT	
81	IleAspGlyThrProThrAspCysValIlePheAlaIleAlaArgPheGlySerPheGly	100
	TTAGCCGTGAGCGGGATTAAACCTCGCGAGAACCTGAGCACCGAGATAACAGTCTCAGGG	
101	LeuAlaValSerGlyIleAsnLeuGlyGluAsnLeuSerThrGluIleThrValSerGly	120
	ACGGCCTCCGCTGCCATAGAGGCCTCAACTCATGGAATTCCGAGCATAGCGATTAGCCTT	
121	ThrAlaSerAlaAlaIleGluAlaSerThrHisGlyIleProSerIleAlaIleSerLeu	140
	GAGGTGGAGTGGAAAGAACCCCTCGCGAGGGTGAGGGGGTTGACTTCTCGGTCTCGACT	
141	GluValGluTrpLysLysThrLeuGlyGluGlyValAspPheSerValSerThr	160
	CACTCCTCAAGAGAACCGCTCGGGAGCCCTCTGAGAGAGGTCTCCTGAGGGCGTTGAC	
161	HisPheLeuLysArgIleAlaGlyAlaLeuLeuGluArgGlyLeuProGluGlyValAsp	180
	ATGCTAACGTCAACGTTCCGAGCGACGCCGAGGAAACGGAGATAGCAATCACCGC	
181	MetLeuAsnValAsnValProSerAspAlaThrGluGluThrGluIleAlaIleThrArg	200
	TTAGCCCAGGAAAGCGCTACTCCCCAACGGTCGAGGAGAGGATTGACCCCAAGGGCAACCCC	
201	LeuAlaArgLysArgTyrSerProThrValGluGluArgIleAspProLysGlyAsnPro	220
	TACTACTGGATTGTCGGCAAACCTGTCCAAGACTTCGAGCCAGGGACAGATGCCTACGCC	
221	TyrTyrTrpIleValGlyLysLeuValGlnAspPheGluProGlyThrAspAlaTyrAla	240
	CTGAAGGTCGAGAGGAAGGTCAAGCGTCACGCCGATAAACATAGATATGACTGCGAGGGTG	
241	LeuLysValGluArgLysValSerValThrProIleAsnIleAspMetThrAlaArgVal	260
	GACTTTGAGGAGCTTGTAAAGGGTTCTGTGGGTGTAA	
261	AspPheGluGluLeuValArgValLeuTrpValEnd	272

# FIGURE 9A

*Thermococcus GU5L5 Phosphatase (26A1A)*  
Complete Gene Sequence (Part 1 of 2)

1	ATGAAAGGAAAGTCTCTTGTAGCGGTCTGGTGGCTTTAATTTGAGCCTGATT MetLysGlyLysSerLeuValSerGlyLeuLeuLeuGlyLeuLeuIleLeuSerLeuIle	20
21	TCATTCAGCCAAGCTTTGCATACTCCCCACACGGCGGTGTCAAAAACATCATAATCCTG SerPheGlnProSerPheAlaTyrSerProHisGlyGlyValLysAsnIleIleIleLeu	40
41	GTTGGAGACGGCATGGGTCTGGGCATGTAGAAATTACAAAGCTCGTTATGGACACTTA ValGlyAspGlyMetGlyLeuGlyHisValGluIleThrLysLeuValTyrGlyHisLeu	60
61	AACATCGAAAACTTCCAGTTACTGGATTGAGCTTACTGATTCCCTAACGTGGTGAAAGTT AsnMetGluAsnPheProValThrGlyPheGluLeuThrAspSerLeuSerGlyGluVal	80
81	ACAGATTCTGCTGCCAGGAACGTCAAATATCCACTGGAGCTAAAACGTATAATGGTATG ThrAspSerAlaAlaAlaGlyThrAlaIleSerThrGlyAlaLysThrTyrAsnGlyMet	100
101	ATTTCACTAACCAAACATAACCGGAAAGATAGTTAACTTAACAACCCTACTTGAAGTGGCT IleSerValThrAsnIleThrGlyLysIleValAsnLeuThrLeuLeuGluValAla	120
121	CAAGAGCTTGGGAAGTCAACAGGGCTGGTCACCACAAAGGATTACCCATGCAACTCCA GlnGluLeuGlyLysSerThrGlyLeuValThrThrArgIleThrHisAlaThrPro	140
141	GCAGTTTGCCTCCCAGTCCCAGATAGGGATATGGAGGGGAGATACCCAAAGCAACTC AlaValPheAlaSerHisValProAspArgAspMetGluGlyGluIleProLysGlnLeu	160
161	ATAATGCACAAAGTTAACGTCTTGTGGTGGAGGGAGAAATTCGATGAGAAAAAT IleMetHisLysValAsnValLeuLeuGlyGlyArgGluLysPheAspGluLysAsn	180
181	TTGGAGCTGCCAAAAACCGGGATACAAAGTAGTTTCACGAAGGAAGAGCTTGAAAAA LeuGluLeuAlaLysLysGlnGlyTyrLysValValPheThrLysGluLeuGluLys	200
201	GTTGAAGGAGATTATGTCCTAGGACTCTTGCAGAAAGTCACATCCCTACGTATTGGAT ValGluGlyAspTyrValLeuGlyLeuPheAlaGluSerHisIleProTyrValLeuAsp	220
221	AGAAAACCCGATGATGTTGGACTTTAGAAATGCCAAAAAGGCAATTCAATACTCGAG ArgLysProAspAspValGlyLeuLeuMetAlaLysLysAlaIleSerIleLeuGlu	240
241	AAGAACCCGAGCGGATTCTTCTCATGGTTGAGGGCGGAAGGATTGACCATGCAGCCCAT LysAsnProSerGlyPhePheLeuMetValGluGlyGlyArgIleAspHisAlaAlaHis	260
261	GGAAACGATGTCGCATCGGTTGTCAGAAACTAAGGAGTTGACGATGTTGTCAGATAC GlyAsnAspValAlaSerValAlaGluThrLysGluPheAspAspValValArgTyr	280
281	GTGCTGGAATATCCGAAAGAGGGGAGATACCTTGGTAATAGTGCCTGCCGATCACGAA ValLeuGluTyrProLysLysArgGlyAspThrLeuValIleValLeuAlaAspHisGlu	300
301	ACTGGAGGTCTTGCCTAACGTATGGAAATGCAATCGATGAAGATGCCATAAGA ThrGlyGlyLeuAlaIleGlyLeuThrTyrGlyAsnAlaIleAspGluAspAlaIleArg	320
321	AAAATAAAAGCAACGCCAGGAGGATGCCAAAGAGGTTAACGCAGGGAGTACTGTAAAA LysIleLysAlaSerThrLeuArgMetProLysGluValLysAlaGlySerSerValLys	340

# FIGURE 9B

## *Thermococcus GU5L5 Phosphatase (26A1A)* Complete Gene Sequence (Part 2 of 2)

341	GAGTCCTCAAAGGTATGCCGGATTTGTCACAGAGGAAGAACGTCAGTATATTGAGAAT GluSerSerLysValCysArgIleCysProAsnArgGlyArgSerGlnTyrIleGluAsn	360
361	GCGCTGCACTCGACAAACAAGTATGCCCTCTCAAATGCAGTAGCCGATGTTATAAACAGG AlaLeuHisSerThrAsnLysTyrAlaLeuSerAsnAlaValAlaAspValIleAsnArg	380
381	CGTATTGGTGGATTCACCTCCTATGAGCATACAGGAGTTCCAGTTCCGCTCTAGCT ArgIleGlyValGlyPheThrSerTyrGluHisThrGlyValProValProLeuLeuAla	400
401	TACGGTCCCAGGGCAGAGAACCTCAGAGGTTCTTACACCATGTGGATACAGCAAGATTA TyrGlyProGlyAlaGluAsnPheArgGlyPheLeuHisHisValAspThrAlaArgLeu	420
421	GTTGCAAAGTTAATGCTCTTGAAGGAGGAATATTCCAGTTACCACTTCAAGCGTGAGC ValAlaLysLeuMetLeuPheGlyArgArgAsnIleProValThrIleSerSerValSer	440
441	AGTGTAAAGGGAGACATAACCGGTGATTACAGGGTTGATGAGAAGGGATGCCACGTTACG SerValLysGlyAspIleThrGlyAspTyrArgValAspGluLysAspAlaTyrValThr	460
461	CTCATGATGTTCTCGGAGAAAAAGTGGATAATGAAATTGAAAAGAGAGTCGATATAGAC LeuMetMetPheLeuGlyGluLysValAspAsnGluIleGluLysArgValAspIleAsp	480
481	AACAAACGGCATGGTTGACTTAAATGACGTCATGTTGATTCTCCAGGAAGCTTGA AsnAsnGlyMetValAspLeuAsnAspValMetLeuIleLeuGlnGluAlaEnd	498

# FIGURE 10A

**OC9a Phosphatase (27A3A)**  
**Complete Gene Sequence (Part 1 of 2)**

1	ATGCCAAGAAATATGCCGCTGTATGCGCCCTGGCCGTTGTTAGGGTCGGCTGGCG	
	MetProArgAsnIleAlaAlaValCysAlaLeuAlaLeuLeuGlySerAlaTrpAla	20
21	GCCAAAGTTGCCGTCTACCCCTACGACGGAGCCGCTTGCTGGCGGGCAGCGCTTCGAT	
	AlaLysValAlaValTyrProTyrAspGlyAlaAlaLeuLeuAlaGlyGlnArgPheAsp	40
41	TTGCGCATAGAACGCTCCGAGCTGAAAGGCAATTAAAGGCTTACCGCATCACCCCTGGAC	
	LeuArgIleGluAlaSerGluLeuLysGlyAsnLeuLysAlaTyrArgIleThrLeuAsp	60
61	GGCCAGCCTCTGGCGGGCTCGAGCAAACCGCGCAGGGGGCCGGGAGGCCGAGTGGACC	
	GlyGlnProLeuAlaGlyLeuGluGlnThrAlaGlnGlyAlaGlyGlnAlaGluTrpThr	80
81	CTGCGCGGTGCCTCTGCGCCCTGGAAGCCACACCCCTCGAGGTCAGGCTCACCGACGAC	
	LeuArgGlyAlaPheLeuArgProGlySerHisThrLeuGluValSerLeuThrAspAsp	100
101	GCTGGGGAGAGCAGGAAGAGCGTACGTTGGGAGGCTCGGCAGAACCTCGCTTGCCCCGA	
	AlaGlyGluSerArgLysSerValArgTrpGluAlaArgGlnAsnLeuArgLeuProArg	120
121	GCGGCCAAGAATGTGATTCTCTTCAATTGGCGACGGATGGCTGGAACACCCCTAACGCC	
	AlaAlaLysAsnValIleLeuPheIleGlyAspGlyMetGlyTrpAsnThrLeuAsnAla	140
141	GCCCCGCATCATGCCAAGGCTTAACCCGAAAACGGTATGCCAACGGAAACCTCGAG	
	AlaArgIleIleAlaLysGlyPheAsnProGluAsnGlyMetProAsnGlyAsnLeuGlu	160
161	ATCGAGAGTGGTTACGGTGGATGGCTACCGTCACTACCGGCAGCTTGATAGCTTCATC	
	IleGluSerGlyTyrGlyGlyMetAlaThrValThrThrGlySerPheAspSerPheIle	180
181	GCCGACTCAGCTAACTCGGTTCTTCCATCATGACCGGGCAGAAGGTGCAGGTGAATGCC	
	AlaAspSerAlaAsnSerAlaSerSerIleMetThrGlyGlnLysValGlnValAsnAla	200
201	CTCAACGTTTACCCATCAAACCTCAAAGATAACCCCTGGCCTACCCCGGATCGAAACCTTA	
	LeuAsnValTyrProSerAsnLeuLysAspThrLeuAlaTyrProArgIleGluThrLeu	220
221	GCGGAGATGCTCAAGCGGGTACGGGGGCCAGCATGGGGTAGTGACCAACCACCTCGGC	
	AlaGluMetLeuLysArgValArgGlyAlaSerIleGlyValValThrThrPheGly	240
241	ACCGACGCTACCCCGGTTCACTCAACGCCATACCCGCCGCCGGTGATTACCAAGGCT	
	ThrAspAlaThrProAlaSerLeuAsnAlaHisThrArgArgGlyAspTyrGlnAla	260
261	ATCGCCGACATGTACTTGGTAGAGGGGGTCGGTGTCCCTGGATGTGATGCTCTTC	
	IleAlaAspMetTyrPheGlyArgGlyGlyPheGlyValProLeuAspValMetLeuPhe	280
281	GGTGGTTCACGCGACTTCATCCCCAGAGCACCCCTGGCTCGCGGCCAGGGATAGCAGC	
	GlyGlySerArgAspPheIleProGlnSerThrProGlySerArgArgLysAspSerThr	300
301	GACTGGATTGCCGAATCCCAGAACGCTGGCTACACCTTGTCAAGCACCCGCCAGCGAGCTG	
	AspTrpIleAlaGluSerGlnLysLeuGlyTyrThrPheValSerThrArgSerGluLeu	320
321	CTGGCGGCCAAACCCACCGATAACCTGTTGGCTGTTAACATTGACAACCTCCCCAGC	
	LeuAlaAlaLysProThrAspLysLeuPheGlyLeuPheAsnIleAspAsnPheProSer	340

# FIGURE 10B

**OC9a Phosphatase (27A3A)**  
**Complete Gene Sequence (Part 2 of 2)**

341	TACCTAGACCGCCAGTGTGGAAGCGGCCGAGATGCTGGGAAGCTTTACCGATATGCC	360
	TyrLeuAspArgAlaValTrpLysArgProGluMetLeuGlySerPheThrAspMetPro	
361	TACCTCTGGGAGATGACCCAGAAAGCCGTGGAGGCTCTCTCAGAACGACAAGGCTTT	380
	TyrLeuTrpGluMetThrGlnLysAlaValGluAlaLeuSerArgAsnAspLysGlyPhe	
381	TTCTTGATGGTTGAGGGGGAAATGGTGGATAAGTACGAGCACCCCTGGACTGCCCGC	400
	PheLeuMetValGluGlyGlyMetValAspLysTyrGluHisProLeuAspTrpProArg	
401	GCACTTTGGGATGTACTCGAGCTGGACC CGCGGTGGCTGGCCAAGGGCTATGCGGCC	420
	AlaLeuTrpAspValLeuGluLeuAspArgAlaValAlaTrpAlaLysGlyTyrAlaAla	
421	TCCCCACCCGATACCCCTGGTGATTGTCACCGCCGACCACGCTCACTCGATCTCGGTGTTT	440
	SerHisProAspThrLeuValIleValThrAlaAspHisAlaHisSerIleSerValPhe	
441	GGCGGGTTACGACTACTCCAAGCAGGGCCGGAGGGGGTGGGGGTTATGAGGCCGCAAG	460
	GlyGlyTyrAspTyrSerLysGlnGlyArgGluGlyValGlyValTyrGluAlaAlaLys	
461	TTCCCCACCTACGGCGACAAAAAGACGCCAACGGCTTTCCTTGCCCCACACCACTCGG	480
	PheProThrTyrGlyAspLysAspAlaAsnGlyPheProLeuProAspThrThrArg	
481	GGAATCGCGGTAGGCTTCGGGCCACGCCGATTACTGTGAAACCTACCGGGCCGCGAG	500
	GlyIleAlaValGlyPheGlyAlaThrProAspTyrCysGluThrTyrArgGlyArgGlu	
501	GTCTACAAAGACCCACCATCTCGACGGCAAAGGTGGTTACGTGGCCAACCCCTGAGGTC	520
	ValTyrLysAspProThrIleSerAspGlyLysGlyTyrValAlaAsnProGluVal	
521	TGCAAGGAGCCGGGCCTTCCAACGTAACGGCAACTCCCAGTAGATAGCGCCCAGGGCGTG	540
	CysLysGluProGlyLeuProThrTyrArgGlnLeuProValAspSerAlaGlnGlyVal	
541	CACACGGCTGATCCCATGCCGCTGTTGCCCTTGGCGTGGGTCTCAGTTCTCAATGGC	560
	HisThrAlaAspProMetProLeuPheAlaPheGlyValGlySerGlnPhePheAsnGly	
561	CTCATCGACCAGACCGAGATCTTCCGCATGCCCAAGGCCCTAGGGTTCAACCCCCAC	580
	LeuIleAspGlnThrGluIlePhePheArgMetAlaGlnAlaLeuGlyPheAsnProHis	
581	CTCGAGAAGCCTTAA LeuGluLysProEnd 585	

# FIGURE //

**M11 TL Phosphatase (29A1A=29A2A)**  
**Complete Gene Sequence**

1	ATGTATAAAATGGATTATTGAGGGTAAGCTGCCAACCTTTCCAAGCCTAGGTGAA MetTyrLysTrpIleIleGluGlyLysLeuAlaGlnAlaProPheProSerLeuGlyGlu	20
21	CTAGCCGATCTCAAAAGACTTTCGACGCCATTATTGTTCTTACAATGCCGCATGAACAA LeuAlaAspLeuLysArgLeuPheAspAlaIleIleValLeuThrMetProHisGlnGln	40
41	CCGCTTAATGAGAAATATATCGAGATATTAGAGAGCCATGGATTCCAAGTCCTCCATGTC ProLeuAsnGluLysTyrIleGluIleLeuGluSerHisGlyPheGlnValLeuHisVal	60
61	CCCACGCTCGACTTCATCCTTAGAACTCTCGACCTTTGAAAACAAGCATATTCAATT ProThrLeuAspPheHisProLeuGluLeuPheAspLeuLeuLysThrSerIlePheIle	80
81	GATAAAAACCTGGAGAGATCCCACAGACTGCTTGCTTGCATGGAGGCATAGGCCGG AspGluAsnLeuGluArgSerHisArgValLeuValHisCysMetGlyGlyIleGlyArg	100
101	AGCGGGCTTGTAACTGCTGCGTACTTAATATTCAAAGTTATGATATTACGACGCCGTA SerGlyLeuValThrAlaAlaTyrLeuIlePheLysGlyTyrAspIleTyrAspAlaVal	120
121	AAGCATGTGAGAACGGTAGTGCTGGTCTATTGAAAACAGAGGGCAAGCGTTATGCTT LysHisValArgThrValValProGlyAlaIleGluAsnArgGlyGlnAlaLeuMetLeu	140
141	GAGAACTACTATACCCCTGGTAAAAGTTCAACAGAGAGTTGCTGAGAGACTACGGGAAG GluAsnTyrTyrThrLeuValLysSerPheAsnArgGluLeuLeuArgAspTyrGlyLys	160
161	AAAATTTCACGCTCGGTGACCCGAAGGCCGTTCTCACGCTTCTAACGACGACTCAGTTC LysIlePheThrLeuGlyAspProLysAlaValLeuHisAlaSerLysThrThrGlnPhe	180
181	ACGATTGAACTCTAACGCAACTTACACGTCAACGAGGGCGTTTCAATCAGTGGCATGGCT ThrIleGluLeuLeuSerAsnLeuHisValAsnGluAlaPheSerIleSerAlaMetAla	200
201	CAATCACTGCTCCACTTCACGACGTAAAAGTCCGCTCTAAACTGAAAGAAGTATTGAA GlnSerLeuLeuHisPheHisAspValLysValArgSerLysLeuLysGluValPheGlu	220
221	AACATGGAATTCTCATCCGCCTCAGAGGAGGTTCTGTCATTATTACCTACTCGATTTC AsnMetGluPheSerSerAlaSerGluGluValLeuSerPheIleHisLeuLeuAspPhe	240
241	TATCAGGATGGCAGGGTTGTTTAACCATTACGATTATCTCCCCGATAGGGTGGATTG TyrGlnAspGlyArgValValLeuThrIleTyrAspTyrLeuProAspArgValAspLeu	260
261	ATTTTATTGTGTAAGTGGGTTGTGATAAAATAGTTGAAGTCTCGTCTTCAGCGAAGAAA IleLeuLeuCysLysTrpGlyCysAspLysIleValGluValSerSerAlaLysLys	280
281	ACCGTTGAGAACGCTTGTAGGAAGAAAGGTTCCCTATCCTGGGCTAATTACTTAGACTAT ThrValGluLysLeuValGlyArgLysValSerLeuSerTrpAlaAsnTyrLeuAspTyr	300
301	GTTPAC Val End 302	

## FIGURE 12

*Thermococcus CL-2 Phosphatase (30A1A)*  
Complete Gene Sequence

	ATGAGAACCTCCTCACCAACGACGACGGCATCTATTCCAACGGTCTGCGCGCGCGGTG	
1	MetArgIleLeuLeuThrAsnAspAspGlyIleTyrSerAsnGlyLeuArgAlaAlaVal	20
	AAGGGCCTGAGCGAGCTCGCGAGGTCTACGTGTCGCCCGCTTTCCAGAGGAGCGCG	
21	LysGlyLeuSerGluLeuGlyGluValTyrValValAlaProLeuPheGlnArgSerAla	40
	AGCGGTGGCGATGACCTACACAGGCCATAAGGCCAAAGAGGGTTGACGTTCCCGGC	
41	SerGlyArgAlaMetThrLeuHisArgProIleArgAlaLysArgValAspValProGly	60
	GCGAAGATAGCGTATGGCATAGACGGAACGCCGACCGACTGCGTGATTTGCCATGCC	
61	AlaLysIleAlaTyrGlyIleAspGlyThrProThrAspCysValIlePheAlaIleAla	80
	CGCTTCGGCGACTTTGATCTGGCGGTAGCGGGATAAACCTAGGCGAGAACCTGAGCACG	
81	ArgPheGlyAspPheAspLeuAlaValSerGlyIleAsnLeuGlyGluAsnLeuSerThr	100
	GAGATAACCGTCTCCGAAACGGCTCGGCGGCGATAGAGGTTCCACCCACGGGATTCCA	
101	GluIleThrValSerGlyThrAlaSerAlaAlaIleGluAlaSerThrHisGlyIlePro	120
	AGTGTAGCTATAAGCCTCGAGGTCGAGTGGAAAGAACCCCTCGCGAGGGGGAGGGTATT	
121	SerValAlaIleSerLeuGluValGluTrpLysLysThrLeuGlyGluGlyIle	140
	GACTTCTCGGTTTCAGCACACTCCTGAGAAGGATAGCGACGGCTGTCCTTAAGAACGGC	
141	AspPheSerValSerAlaHisPheLeuArgArgIleAlaThrAlaValLeuLysLysGly	160
	CTGCCTGAAGGGTGGACATGCTAACGTGAACGTCCCTAGCGACGCCAGCGAGGGACT	
161	LeuProGluGlyValAspMetLeuAsnValAsnValProSerAspAlaSerGluGlyThr	180
	GAGATCGCCATAACGCGCTCGGAGGAAGCGCTATTCTCCGACGATAGAGGAGAGGATA	
181	GluIleAlaIleThrArgLeuAlaArgLysArgTyrSerProThrIleGluGluArgIle	200
	GACCCCAAGGGCAACCCCTACTACTGGATCGTTGGCAGGCTCGTCCAGGAGTTCGAGCCG	
201	AspProLysGlyAsnProTyrTyrTrpIleValGlyArgLeuValGlnGluPheGluPro	220
	GGCACGGACGCCCTACGCTCTGAAAGTCGAGAGAAAGGTCAGCGTCACGCCATAAACATC	
221	GlyThrAspAlaTyrAlaLeuLysValGluArgLysValSerValThrProIleAsnIle	240
	GACATGACTGCGAGGGTTGACTTTGAGAACCTTCAAAGGCTCTGAGCCTGTGA	
241	AspMetThrAlaArgValAspPheGluAsnLeuGlnArgLeuLeuSerLeuEnd	258

# FIGURE /3

*Aquifex VF-5 Phosphatase (34A1A)*  
Complete Gene Sequence

1	ATGGAAAACCTAAAAAGTACCTAGAACGTTGCAAAATAGCCCGCTCGCGGTGGCAG MetGluAsnLeuLysLysTyrLeuGluValAlaLysIleAlaAlaLeuAlaGlyGln	20
21	GTTCTGAAAGAAAACCTCGGAAAGGTAAAAAGGAAAACATAGAGGAAAAGGGAAAAG ValLeuLysGluAsnPheGlyLysValLysLysGluAsnIleGluGluLysGlyGluLys	40
41	GACTTTGTAAGTTACGTGGATAAAACTTCAGAGGAAAGGATAAAGGAGGTGATACTCAAG AspPheValSerTyrValAspLysThrSerGluGluArgIleLysGluValIleLeuLys	60
61	TTCTTCCCAGTCACGAGGTCGTAGGGAAAGAGATGGGTGCGGAGGGAAAGCGGAAGCGAA PhePheProAspHisGluValValGlyGluGluMetGlyAlaGluGlySerGlySerGlu	80
81	TACAGGTGGTTCATAGACCCCCCTTGACGGCACAAAGAACTACATAAACGGTTTCCCATC TyrArgTrpPheIleAspProLeuAspGlyThrLysAsnTyrIleAsnGlyPheProIle	100
101	TTTGCCGTATCAGTGGACTTGTAAAGGGAGAAGAGCCAATTGTGGGTGCCGTTACCTT PheAlaValSerValGlyLeuValLysGlyGluGluProIleValGlyAlaValTyrLeu	120
121	CCTTACTTTGACAAGCTTACTGGGGTGTAAAGGTCTCGGGCTTACGTAAACGGAAAG ProTyrPheAspLysLeuTyrTrpGlyAlaLysGlyLeuGlyAlaTyrValAsnGlyLys	140
141	AGGATAAAAGTAAAGGACAATGAGAGTTAAAGCAGGCCGGAGTGGTTACGGATTTCCC ArgIleLysValLysAspAsnGluSerLeuLysHisAlaGlyValValTyrGlyPhePro	160
161	TCTAGGAGCAGGAGGGACATATCTATCTACTTGAACATATTCAAGGATGTCTTTACGAA SerArgSerArgAspIleSerIleTyrLeuAsnIlePheLysAspValPheTyrGlu	180
181	GTTGGCTCTATGAGGAGACCCGGGGCTGCTGCGGTGACCTCTGCATGGTGGCGGAAGGG ValGlySerMetArgArgProGlyAlaAlaAlaValAspLeuCysMetValAlaGluGly	200
201	ATATTTGACGGGATGATGGAGTTGAAATGAAGCCGTGGACATAACCGCAGGGCTTGTA IlePheAspGlyMetMetGluPheGluMetLysProTrpAspIleThrAlaGlyLeuVal	220
221	ATACTGAAGGAAGCCGGGGCGTTACACACTTGTGGAGAACCCCTCGGAGTTCCGAC IleLeuLysGluAlaGlyGlyValTyrThrLeuValGlyGluProPheGlyValSerAsp	240
241	ATAATTGCGGGCAACAAAGCCCTCCACGACTTATACCTCAGGTAGCCAAAAGTATATG IleIleAlaGlyAsnLysAlaLeuHisAspPheIleLeuGlnValAlaLysLysTyrMet	260
261	GAAGTGGCGGTGTGA GluValAlaValEnd 265	